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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/463,059 01/19/00 NAKANO

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EXAMINER

CLARKE Y	
ART UNIT	PAPER NUMBER

1752
DATE MAILED:

04/27/01

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/463,059

Applicant(s)

NAKANO, TATSUYA

Examiner

Yvette M Clarke

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

DETAILED ACTION

This is written in reference to application number 09/468059 filed on January 19, 2000.

Information Disclosure Statement

1. The Information Disclosure Statement filed on January 19, 2000 has been entered and fully considered.

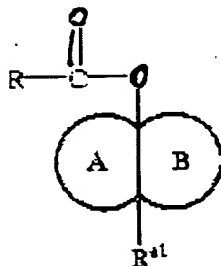
Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-5 and 9 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-2, and 4 of U. S. Patent No. 6218569 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because the compound of the said patent has a



structure .

wherein R is a polymerizable unsaturated group such as

Art Unit: 1752

vinyl, isopropenyl or allyl; ring A and ring Bis a non-aromatic carbon; and R^{a1} can be H, OH or RCO_2 . In the instance where R is $CH_2=CH$; R^{a1} is OH or H; and ring A and ring B is a bridged ring, a cyclohexane ring or a cyclopentane ring the limitations of the claimed invention are met. Thereby making the invention of the present application obvious in light of the teachings of the present US patent 6218569 B1.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

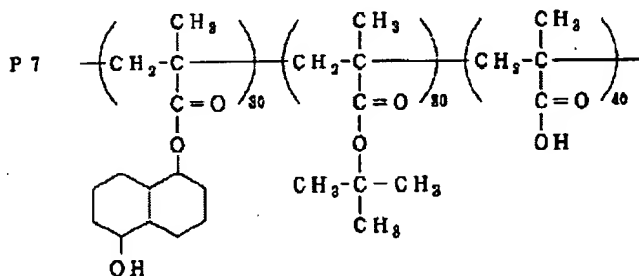
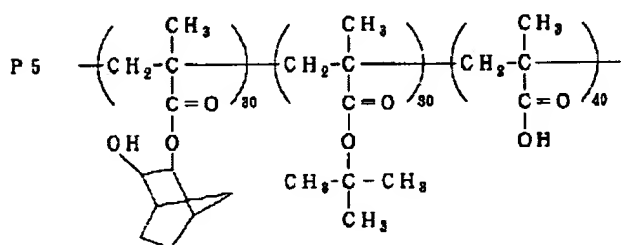
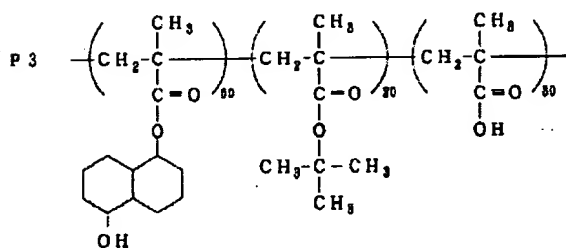
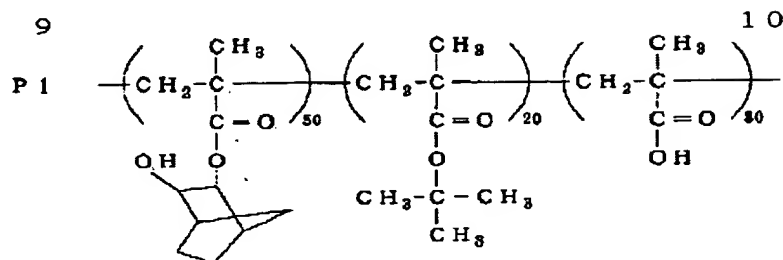
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

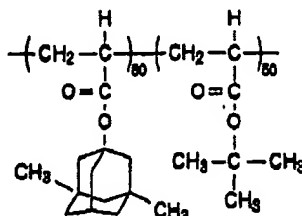
5. Claims 1-5 and 9-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakase (JP 10003169A). Nakase teaches a photosensitive composition comprising a polymer compound having an alicyclic structure having at least one kind of substituent selected from OH and NO_2 groups on the side chain. Examples of suitable polymer compounds are represented by polymer structures P1-P13 (page 6-9). Specifically the first monomer unit of polymer P1, P3, P5 and P7 meet the limitations of the claimed invention. The said structures are:



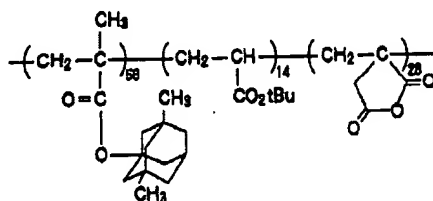
The table presented on page 10 shows that the said copolymers are used in combination with 2% by weight of NAT which is a triflate type photoacid generator (pg. 9 p. 0038).

6. Claims 1-2, 4, 7 and 10-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Takechi (EP 663616 A2). Takechi teaches a radiation sensitive material and method for forming a pattern comprising various (meth)acrylic acid/(meth)acrylic

ester monomer based copolymers and an acid generating compound. Specifically examples 4 and 5 exemplify the use of a dimethyladamantyl acrylate monomer copolymerized with t-butyl acrylate. The said copolymer has the structural formula:

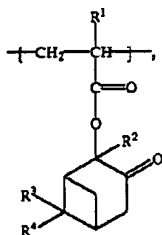


The said copolymer was mixed with 15% by weight triphenylsulfonium hexafluoroantimonate to form a photoresist composition. The composition was spin coated onto a wafer and exposed and developed (pg. 28-pg. 30). Takechi further exemplifies in example 37 a polymer of the given structure

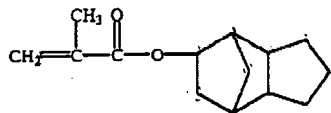


in combination with 15% by weight of triphenylsulfonium hexafluoroantimonate. The formed composition was coated onto a silicon wafer, exposed and developed (pg. 58). The first monomer of the polymer of example 37 meets the limitations of the claimed formula 2a wherein R₄ is two CH₃ groups and one H; R₁ is H; and R₃ is CH₃.

7. Claims 1-5, and 9-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Hada (US 5929271 A). Hada teaches a compound for use in a positive working resist composition. The essential component of the taught invention is an acrylic resin comprising the monomeric unit (I):



wherein $R_1 = H$, or CH_3 ; and R_2 , R_3 and $R_4 = H$, or a linear or branched C_{1-4} alkyl (c. 3, l. 25-60). The taught component (A) can be a homopolymer or a copolymer (c. 4, l. 17-c.5, l. 18). The taught acrylic resin is used in combination with an acid generating compound to form a composition which is coated on a semiconductor substrate and exposed and developed to leave a positively patterned resist layer (c. 9, l. 39-56). Preparation Example 1 teaches the preparation of 2-hydroxy-3-pinanone methacrylate. Preparation Example 2 teaches copolymerizing the monomer of example 1 with t-butyl methacrylate and methacrylic acid (c. 9, l. 65-c. 10, l. 45). Preparation example 4 exemplifies the use of the monomer adamantyl methacrylate which has the structure (c. 11, l. 1-22).

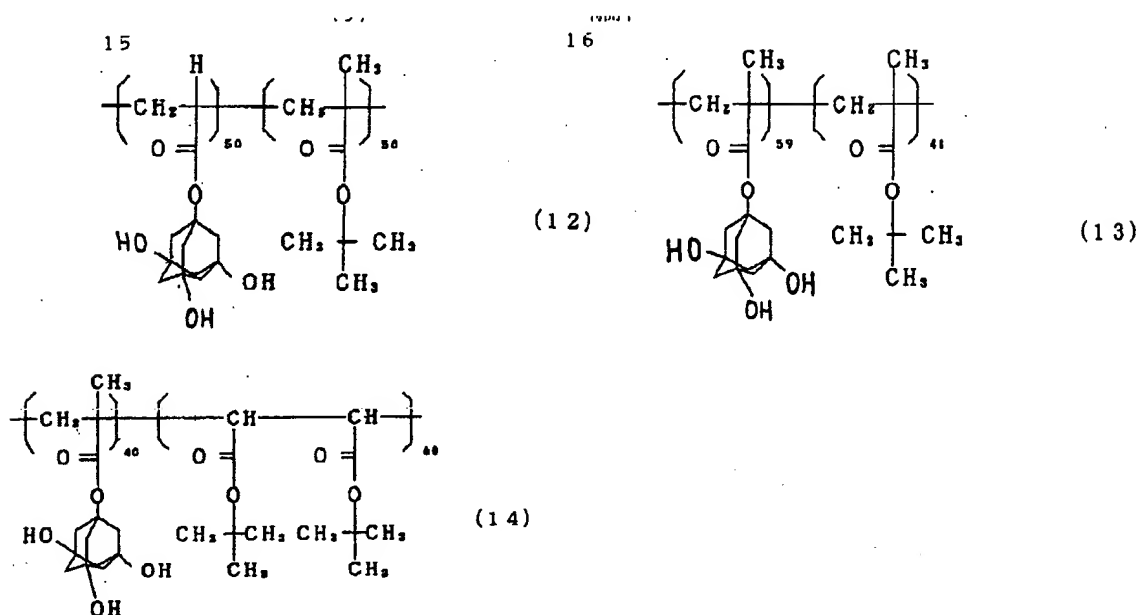


It is the examiner's position that the said structure meets the limitation of the applicant's claim 3 when $n=1$ and R_4 is H.

8. Claims 1-2, 4-8, 10-14 are rejected under 35 U.S.C. 102(a) as being anticipated by Hiroto (JP 11109632A). Hiroto teaches a radiation sensitive material and pattern forming method comprising a resin having a polar group containing alicyclic functional group and a functional group from which an alkali-soluble group is formed by an acid

Art Unit: 1752

and an acid generation compound. Hiroto discloses the use of copolymers in the form of the given structures (12), (13) and (14).



The first monomers of the given formulae meet the limitations of claim 6 where n is 2-3 and R⁴ is a OH group. The limitations of claim 7 are also met when R¹ is H.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


- Choi et al. (US 5851727 A) which teaches a photosensitive polymer and photoresist composition.
- Nozaki et al. (US 5968713 A) which teaches a chemically amplified resist composition and process for the formation of resist patterns.
- Takechi et al. (US 6004720 A) which teaches a radiation sensitive material and method for forming a pattern.
- Foster et al. (US 6054248 A) which teaches a hydroxy-diisocyanate thermally cured undercoat for 193 nm lithography (see c. 5, l. 5-51).


Art Unit: 1752

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yvette M Clarke whose telephone number is 703-305-0589. The examiner can normally be reached on Monday-Thursday 7-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Baxter can be reached on 703-308-2303. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3599 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

ymc 
April 23, 2001


JANET BAXTER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700